The University of Western Ontario

Relating Educational Experiences and Career Choices

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Abstract

How do the educational experiences of women in astronomy or space science influence their career decisions? Results of a recently-developed survey will be presented, where over 50 women with graduate level education in astronomy or related fields were asked about their undergraduate and graduate educational experiences, reasons for choosing their academic path, relationships with their graduate supervisor(s), social experiences, expectations, and how their career goals have evolved over time. Connections between experiences and career choices will be discussed, and a list of future work will be given.

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Introduction

This study was motivated by the numbers in Figure 1:

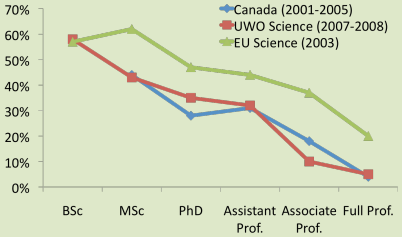

Fig. 1: The mean percentage of women in Canadian astronomy (blue; Reid & Matthews, 2007), women in the sciences at UWO (red; UWO data book), and women in sciences in the EU (green; Mehr & Rees, 2007).

Many studies (for example, Reid & Matthews, 2007; Mehr & Rees, 2007) have shown there is a consistent decline in the percentage of women at each academic level, even though the percentage of women in science undergraduate programs is increasing. What is the explanation for this "leaky pipeline"?

A survey consisting of 25 questions was designed in order to address how the educational experiences of women in astronomy and related areas affect their career choices. The first five questions gathered demographic information, while the other 20 questions inquired about undergraduate and graduate education experiences.

The survey was given to 51 women enrolled in a graduate program in astronomy or a related field, or had been in the past. Of the 51 surveys, 38 were completed, and the results from only those surveys were used in this study.

Demographics

The participants were located in Canada (22),the United States (8),the United Kingdom (3), Germany (2), New Zealand (2), and Finland (1). Five respondents, all in the 30-39 age range, had at least one child. Figure 2 shows the age range of the respondents, broken down by marital status. Figure 3 shows the current education level distribution. All of the respondents had received a Bachelors degree in either astronomy, physics or earth science.

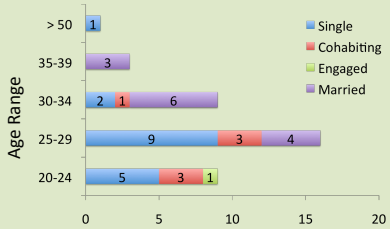

Fig. 2: The age range distribution of the respondents, broken down by marital status.

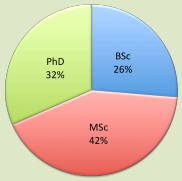

Fig. 3: Distribution of last degree completed.

Results

Of the 38 completed surveys, 18 (47%) women planned to continue in academia. Of those, 8 (44%) rated their graduate education experience worse than their undergraduate experience, and 7 (39%) believed their graduate experiences were different from their expectations in a negative way (more work, more time consuming, more stressful, etc.). All respondents, except one, felt they worked well (67%) or somewhat well (28%) with their graduate supervisor. In this group, 10 (56%) were cohabiting, engaged, or married, 4 had at least one child (22%), and the average age was 30.

The other 20 (53%) women reported they did not plan to continue in academia, were willing to take another career path, or were unsure of their career path. Of those, 16 (80%) rated their graduate education experience worse than their undergraduate experience. In addition, 16 (80%) believed their graduate experiences differed from their expectations in a negative way. Most (18) responded that they worked well (50%) or somewhat well (40%) with their graduate supervisor. In this group, 11 (55%) were cohabiting, engaged, or married, one had at least one child (5%), and the average age was 27.

Conclusions & Future Work

Using these results, there does not seem to be a correlation between marital status or having children on choosing an academic career. Nor does it seem to rely on the relationship with the graduate supervisor. However, the graduate experience as a whole seems to affect career choices, especially when compared to the undergraduate experience and to initial expectations for graduate school. It also seems to depend on age, where younger women are more likely to opt out of an academic career.

It should be noted that there were some biases in this survey:

- Nearly 80% of the respondents resided in North America
- Approximately 65% were in the 20-29 age range
- Most of the respondents were in graduate school or in an academic position in astronomy or related field (although this was not a question on the survey, it was distributed to such communities)

This study is far from complete, and the results are considered to be very preliminary. In the future, this study should include responses from a wider range of women, especially those no longer in the field of astronomy. It could be expanded to include questions regarding personal life experiences (for example, investigating how getting married or having children during graduate school affect career decisions). It could also be extended to women in other areas of science, and include men to serve as a comparison. Finally, the survey could be markedly improved by partnering with a researcher in the social sciences in order to extract the most relevant information from the survey responses.

Acknowledgements

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